



California ISO
Your Link to Power

10 Year
Anniversary 1998-2008

2010 LCR Study Bay Area

Bryan Fong

Senior Regional Transmission Engineer

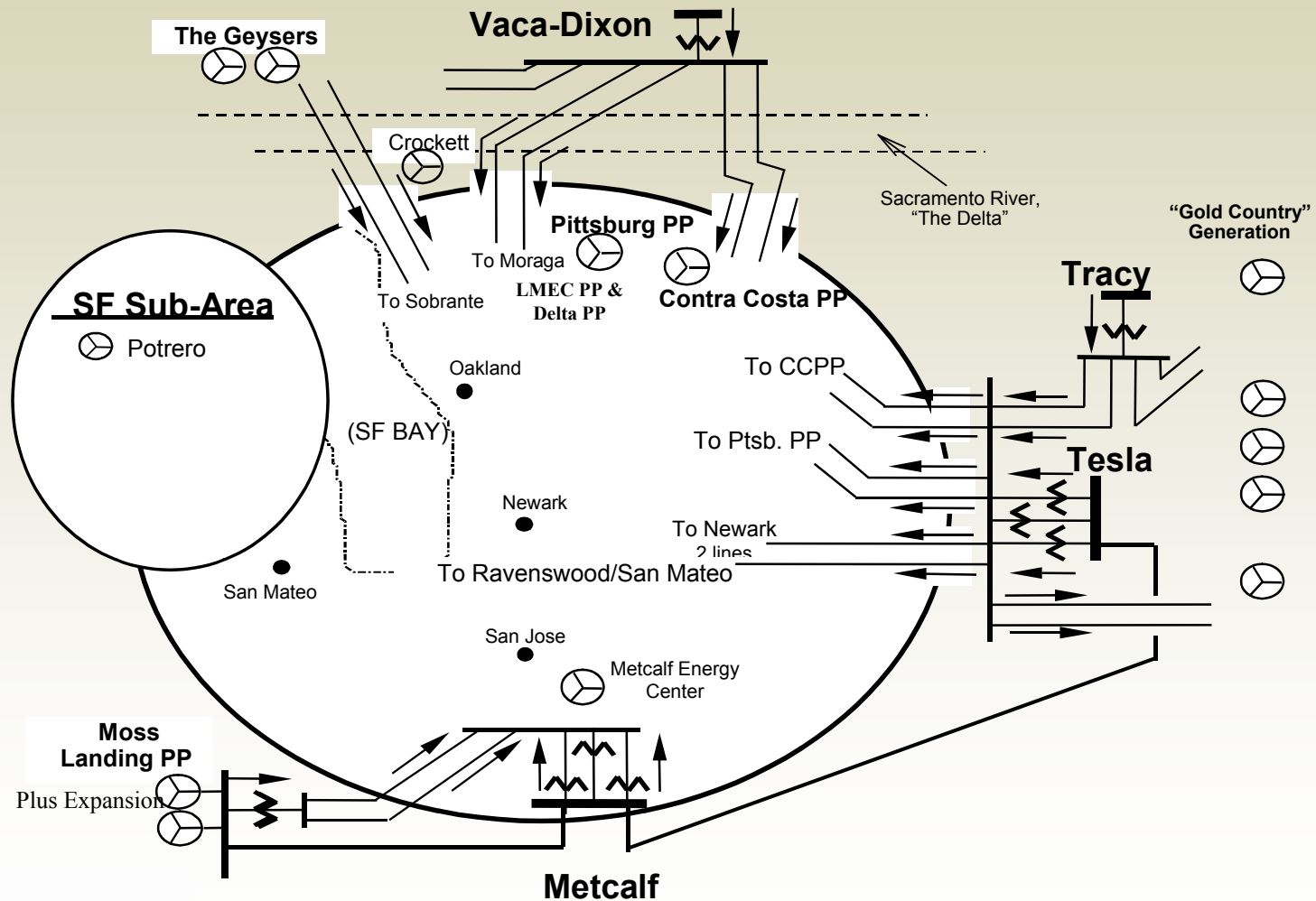
Stakeholder Meeting

March 10, 2009

Greater Bay Area Map



Greater Bay Area Transmission System



New major transmission projects

- Metcalf-Moss Landing 230 kV Lines Reconductoring Nov-08
- Vaca Dixon-Birds Landing 230 kV Reconductoring May-09
- Martin-Hunters Point 115 kV Cable Apr-09
- Contra Costa-Las Positas 230 kV Reconductoring June-09
- Transbay DC Cable March-10
- Newark-Ravenswood 230 kV Line May-10
- Pittsburg-Tesla 230 kV Reconductoring May-10
- Oakland Underground Cable May-10

New major power plant projects

- Gateway Generating Facility – Oct 08 (already modeled in the 2009 LCR study)
- SF Peakers – Removed, slip from 6/09 to indefinite
- SF Airport Peaker – Removed, slip from 6/09 to indefinite

Greater Bay Area Load

2010 1-in-10 Year Load Representation

Total Load = 9,866 MW

Transmission Losses = 240 MW

Total Load + Losses = 10,106 MW

San Francisco Sub Area

Changes since 2009

- H-P 115 kV No. 3 Cable
- Transbay Cable

Contingency: overlapping outage of the Transbay 230 kV cable and A-H-W #1 115 kV cable

Limiting Component: thermal overload of A-H-W #2 115 kV cable

LCR Need: 35 MW (includes 0 MW of QF/Muni generation)

San Jose Sub Area

Contingency: overlapping outage of either Metcalf-El Patio #1 or #2 115 kV Line and the Metcalf-Evergreen #1 115 kV line

Limiting Component: thermal overload of the Metcalf-Evergreen #2 115 kV line

LCR Need: 386 MW (includes 247 MW QF/Muni generation)

Llagas Sub Area

Contingency: overlapping outage of the Metcalf D-Morgan Hill 115 kV Line with one of the Gilroy CTs off-line

Limiting Component: voltage drop (5%) at Morgan Hill substation

LCR Need: 135 MW (includes 0 MW of QF/Muni generation)

Oakland Sub Area

Changes since 2009

- New Oakland C-X #2 115 kV Cable - May-10

Contingency: overlapping outage of the Claremont K –
Oakland D #1 & 2 115 kV lines

Limiting Component: thermal overload of Moraga–
Oakland X #1-4 115 kV lines

LCR Need: 50 MW (includes 1 MW of QF and 45 MW of
Muni generation)

Not counting the Pittsburg/Oakland LCR need.

Pittsburg/Oakland Sub Area

Changes since 2009

- Pittsburg-Tesla 230 kV Lines Reconductor – May-10

Pittsburg/Oakland Sub-area – Category C

Contingency: Moraga #3 230/115 kV and Delta Energy Center out

LCR need: 3240 MW (includes 560 MW of QF/Muni generation)

Limiting component: Thermal overload on the Moraga #1 230/115 kV

Pittsburg/Oakland Sub-area – Category B

Contingency: Moraga #3 230/115 kV

LCR need: 2427 MW (includes 560 MW of QF/Muni generation)

Limiting component: Thermal overload on the Moraga #1 230/115 kV

Greater Bay Area Overall

Contingency: Tesla-Metcalf 500kV line with Delta Energy Center out of service

Limiting Component: reactive margin within the Bay Area

LCR Need: 4664 MW in 2010 (includes 215 MW of Wind, 641 MW of QF and 255 MW of Muni generation)

Greater Bay Area Total LCR

2010	Wind (MW)	QF/Selfgen (MW)	Muni (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	215	641	255	5662	6773

2010	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW LCR
Category B (Single)	4664	0	4664
Category C (Multiple)	4664	0	4664

Changes since the 2008 LCR study

Total Bay Area LCR has slightly decreased

- Load forecast is down by 175 MW
- No new generation additions
- Numerous transmission projects – mostly influenced the sub-area constraints
- Reactive Margin is a non-linear function
- Overall the LCR has decreased by 127 MW

Your comments and questions are welcome

For written comments, please send to: RegionalTransmission@caiso.com